



EXTRUSION



OVERVIEW:

Laboratory-scale polymer melt-processing facilities at the Natick Soldier Center (NSC) focus on the research and development of new plastics and nanocomposite formulations without the need for production-size equipment and large quantities of material. Capabilities include polymer compounding, blown and cast film extrusion, multilayer film extrusion, moisture analysis, resin drying ovens, and a full range of polymer characterization equipment.

PROCESSING EQUIPMENT:

Thermoprism TSE-16 Twin Screw Extruder:

- This 16mm bore twin-screw extruder has programmable screw elements for low to high shear-rate processing.
- Strand die with pelletizing line
- 30mm diameter spiral flow blown-film die
- 30mm and 130mm cast film dies
- 2 Controlled output volumetric feeders
- Max Speed: 500 rpm Temp. Range: 0-400°C

ThermoHaake PolyLab Extrusion System:

- The PolyLab system has both single-screw and conical twin-screw extrusion capability.
- Cast film dies of widths 100 and 130mm
- 30mm diameter spiral flow blown film die with maximum lay-flat width of 200mm
- 3-strand pelletizing line
- Temperature Range: 0-450°C

Collin Teach-Line Multilayer Cast Film Co-Extrusion System:

- Three or five-layer film processing capability utilizing 3 single-screw extruders.
- Feedblock layering system
- Max Output: 4.2kg/hr
- 120mm adjustable thickness film die for films of thickness 20-300µm
- Maximum of three different polymer materials

DACA Micro-Compounding Unit:

- Ideal for determining material compatibility and material properties with only gram-size samples!
- Extrusion of polymer strands
- Max Speed: 360 rpm Temp. Range 0-400°C
- Injection molding option

Additional Processing Equipment:

- Melt Flow Indexer (MFI)
- Coulometric Karl Fischer Moisture Meter
- Dri-Air and Novatec Dessicant Resin Dryer

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**THERMOHAAKE
BLOWN FILM UNIT**



**COLLIN MULTILAYER
FILM EXTRUDER**



**DACA MICRO-
COMPOUNDING UNIT**

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